



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,908	06/28/2006	Hae-Il Park	P1938US00	2096
58027 7590 10/09/2008 H.C. PARK & ASSOCIATES, PLC 8500 LEESBURG PIKE SUITE 7500 VIENNA, VA 22182			EXAMINER WALFORD, NATALIE K	
			ART UNIT 2879	PAPER NUMBER
			NOTIFICATION DATE 10/09/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATENT@PARK-LAW.COM

Office Action Summary	Application No. 10/596,908	Applicant(s) PARK ET AL.	
	Examiner NATALIE K. WALFORD	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-14, 22, 23, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7, 9-14, 22-23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 6,346,775) in view of Nishiyama et al. (US 6,331,064).

Regarding claim 1, Lee discloses a light source device in figure 11, comprising: a first substrate (item 50); an electrode (item 51 or 52); a discharge auxiliary layer (item 54 and 55) formed on an inner surface of the first substrate, the discharge auxiliary layer including carbon nanotubes and an oxide (items 54 and 55); a fluorescent layer (item 58) formed on the first substrate; and a second substrate (item 60) facing the first substrate, but does not expressly disclose that the electrode is formed on an outer surface of the first substrate, as claimed by Applicant. Nishiyama is cited to show a light source in figure 14 with an electrode (item 35) that is formed on an outer surface of a substrate (item 35p). Nishiyama teaches that a light source's life span can be increased without the need to replace parts of the display (column 1, lines 41-46).

Art Unit: 2879

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lee's invention to include the electrode is formed on an outer surface of the first substrate as suggested by Nishiyama for increasing the life space of the light source.

Regarding claim 2, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, wherein the discharge auxiliary layer corresponds to a position of the electrode, and the fluorescent layer is formed on the discharge auxiliary layer (Lee; see FIG. 11).

Regarding claim 3, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, wherein the oxide comprises at least one selected from the group consisting of magnesium oxide (MgO), strontium oxide (SrO), barium oxide (BaO), aluminum oxide (Al₂O₃) and a mixture thereof (Lee; column 8, lines 60-61).

Regarding claim 4, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, but does not expressly disclose that the oxide is silicon dioxide (SiO₂), as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the oxide is silicon dioxide (SiO₂), since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability of the purpose of using the oxide in a discharge auxiliary layer.

Regarding claim 7, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, wherein the carbon nanotubes are exposed on the oxide (Lee; see FIG. 11).

Art Unit: 2879

Regarding claim 9, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, further comprising a sealing member (Lee; item 56) disposed between the first and second substrates to seal a discharge gas (Lee; item 59).

Regarding claim 10, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, further comprising the fluorescent layer on the second substrate (Lee; see FIG. 11).

Regarding claim 11, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, wherein the electrode is formed on each side of the outer surface of the first substrate (Nishiyama; see FIG. 11) and the discharge auxiliary layer is formed on each side of the inner surface of the first substrate corresponding to a position of the electrode (Lee; see FIG. 11).

Regarding claim 12, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, further comprising: an electrode (Nishiyama; item 35) formed on an outer surface of the second substrate; and a discharge auxiliary layer (Lee; items 54 and 55) formed on an inner surface of the second substrate, the discharge auxiliary layer comprising carbon nanotubes and an oxide (Lee; items 54 and 55).

Regarding claim 13, the combined reference of Lee and Nishiyama disclose the light source device of claim 12, wherein the electrode is formed on each side of the outer surface of the second substrate (Nishiyama; see FIG. 11) and the discharge auxiliary layer is formed on each side of the inner surface of the second substrate (Lee; see FIG. 11).

Art Unit: 2879

Regarding claim 14, the combined reference of Lee and Nishiyama disclose the light source device of claim 1, wherein the discharge auxiliary layer is integrally formed with the fluorescent layer to form a discharge fluorescent layer (Lee; see FIG. 11).

Regarding claim 22, Lee discloses a liquid crystal display apparatus in figure 11 comprising: a surface light source device that includes a first substrate (item 50), an electrode (item 51 or 52), a discharge auxiliary layer (items 54 and 55) formed on each side of an inner surface of the first substrate, a fluorescent layer (item 58) formed on the first substrate, and a second substrate (item 60) facing the first substrate, the discharge auxiliary layer including carbon nanotubes and an oxide (items 54 and 55); a liquid crystal display panel that displays an image by using a light emitted from the surface light source device (see FIG. 11); and a receiving container that receives the surface light source device and the liquid crystal display panel (see FIG. 11), but does not expressly disclose that the electrode is formed on an outer surface of the first substrate, as claimed by Applicant. Nishiyama is cited to show a light source in figure 14 with an electrode (item 35) that is formed on an outer surface of a substrate (item 35p). Nishiyama teaches that a light source's life span can be increased without the need to replace parts of the display (column 1, lines 41-46).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lee's invention to include the electrode is formed on an outer surface of the first substrate as suggested by Nishiyama for increasing the life space of the light source.

Regarding claim 23, the combined reference of Lee and Nishiyama disclose the apparatus of claim 22, wherein the discharge auxiliary layer corresponds to a position of an electrode (Lee;

Art Unit: 2879

see FIG. 11), and the fluorescent layer is formed on the discharge auxiliary layer (Lee; see FIG. 11).

Regarding claim 25, the combined reference of Lee and Nishiyama disclose the apparatus of claim 22, wherein the carbon nanotubes are exposed at regular intervals on the oxide (Lee; see FIG. 11), and the interval is no less than twice a length of the exposed carbon nanotubes (Lee; see FIG. 11).

Regarding claim 26, the combined reference of Lee and Nishiyama disclose the apparatus of claim 22, wherein the discharge auxiliary layer is integrally formed with the fluorescent layer to form a discharge fluorescent layer (Lee; see FIG. 11).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 6,346,775) in view of Nishiyama et al. (US 6,331,064) in further view of Fran et al. (US 6,774,548).

Regarding claim 8, the combined reference of Lee and Nishiyama disclose the light source device of claim 7, but does not expressly disclose that the carbon nanotubes are exposed at regular intervals on the oxide and the interval is no less than twice a length of the exposed carbon nanotubes, as claimed by Applicant. Fran is cited to show a light source device in figure 2 with carbon nanotubes (item 48) that are exposed at regular intervals and the interval is no less than twice a length of the exposed carbon nanotubes. Fran teaches that this interval can increase the brightness and luminescent uniformity of the device (column 4, lines 31-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined reference of Lee and Nishiyama to include the

Art Unit: 2879

carbon nanotubes are exposed at regular intervals on the oxide and the interval is no less than twice a length of the exposed carbon nanotubes as suggested by Fran for increasing the brightness and luminescent uniformity of the device.

Allowable Subject Matter

Claims 5-6 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 5, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 5, specifically for the limitation of the carbon nanotubes and the oxide are combined in a paste form in combination with other claimed features of the present claimed invention.

Regarding claim 6, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 6, specifically for the limitation of the discharge auxiliary layer further comprises a viscosity adjuster and an adhesive in combination with other claimed features of the present claimed invention.

Regarding claim 24, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 24, specifically for the limitation of the carbon nanotubes and the oxide are combined in a paste form in combination with other claimed features of the present claimed invention.

Art Unit: 2879

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nkW
/Natalie K Walford/
Examiner, Art Unit 2879

/Sikha Roy/
Primary Examiner, Art Unit 2879